the errors noted in the Raw Sequence Listing Error Report which was attached to the Office communication of October 23, 2001 (copy attached). The Office is requested to contact the undersigned if anything further is required in this regard.

An early and favorable Action on the merits is requested.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____

B. J. Sadoff
Reg. No. **36,663**

BJS:eaw
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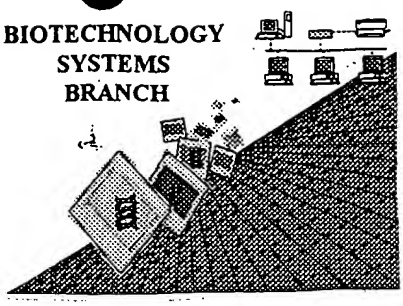
P. Holbrook

BIOTECHNOLOGY SYSTEMS BRANCH



TECH CENTER 1600/2900

RECEIVED
NOV 0 2 2001

RAW SEQUENCE LISTING ERROR REPORT

APPLICANT COPY

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/646,224

Source: OIPE

Date Processed by STIC: 9/18/2001

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.
PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:
1) **INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,**
2) **TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.
PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)
PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.
Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:
http://www.uspto.gov/web/offices/pac/checker

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw


```
 4 <110> APPLICANT: Glaxo Wellcome PLC
 5       Tate, Simon N
 6       Grose, David T
 7       Hicks, Caroline A
 9 <120> TITLE OF INVENTION: Ion Channels
11 <130> FILE REFERENCE: PG3432
13 <140> CURRENT APPLICATION NUMBER: US/09/646,224
14 <141> CURRENT FILING DATE: 2001-08-30
16 <150> PRIOR APPLICATION NUMBER: GB 9805793.8
17 <151> PRIOR FILING DATE: 1998-03-18
19 <160> NUMBER OF SEQ ID NOS: 35
21 <170> SOFTWARE: PatentIn Ver. 2.1
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ERRORED SEQUENCES

pg 4-5

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500 <210> SEQ ID NO: 2
501 <211> LENGTH: 1765
502 <212> TYPE: PRT
503 <213> ORGANISM: Rattus norvegicus
505 <400> SEQUENCE: 2
506 Met Glu Glu Arg Tyr Tyr Pro Val Ile Phe Pro Asp Glu Arg Asn Phe
507   1               5                  10                  15
509 Arg Pro Phe Thr Ser Asp Ser Leu Ala Ala Ile Lys Lys Arg Ile Ala
510             20                  25                  30
512 Ile Gln Lys Glu Arg Lys Lys Ser Lys Asp Lys Ala Ala Ala Glu Pro
513         35                  40                  45
515 Gln Pro Arg Pro Gln Leu Asp Leu Lys Ala Ser Arg Lys Leu Pro Lys
516     50                  55                  60
518 Leu Tyr Gly Asp Ile Pro Pro Glu Leu Val Thr Lys Pro Leu Glu Asp
519 65                  70                  75                  80
521 Leu Asp Pro Tyr Tyr Lys Asp His Lys Thr Phe Met Val Leu Asn Lys
522                 85                  90                  95
524 Lys Arg Thr Ile Tyr Arg Phe Ser Ala Lys Arg Ala Leu Phe Ile Leu
525             100                 105                 110
527 Gly Pro Phe Asn Pro Leu Arg Ser Leu Met Ile Arg Ile Ser Val His
528         115                 120                 125
530 Ser Val Phe Ser Met Phe Ile Ile Cys Thr Val Ile Ile Asn Cys Met
531     130                 135                 140
533 Phe Met Ala Asn Ser Met Glu Arg Ser Phe Asp Asn Asp Ile Pro Glu
534 145                 150                 155                 160
536 Tyr Val Phe Ile Gly Ile Tyr Ile Leu Glu Ala Val Ile Lys Ile Leu
537                 165                 170                 175
539 Ala Arg Gly Phe Ile Val Asp Glu Phe Ser Phe Leu Arg Asp Pro Trp
540             180                 185                 190
542 Asn Trp Leu Asp Phe Ile Val Ile Gly Thr Ala Ile Ala Thr Cys Phe
543         195                 200                 205
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RAW SEQUENCE LISTING DATE: 09/18/2001
PATENT APPLICATION: US/09/646,224 TIME: 10:11:16

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```
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546     210                 215                 220
548 Arg Ala Leu Lys Ala Ile Ser Val Ile Ser Gly Leu Lys Val Ile Val
549 225                 230                 235                 240
551 Gly Ala Leu Leu Arg Ser Val Lys Lys Leu Val Asp Val Met Val Leu
552                 245                 250                 255
554 Thr Leu Phe Cys Leu Ser Ile Phe Ala Leu Val Gly Gln Gln Leu Phe
555             260                 265                 270
557 Met Gly Ile Leu Asn Gln Lys Cys Ile Lys His Asn Cys Gly Pro Asn
558         275                 280                 285
560 Pro Ala Ser Asn Lys Asp Cys Phe Glu Lys Glu Lys Asp Ser Glu Asp
561     290                 295                 300
563 Phe Ile Met Cys Gly Thr Trp Leu Gly Ser Arg Pro Cys Pro Asn Gly
564 305                 310                 315                 320
566 Ser Thr Cys Asp Lys Thr Thr Leu Asn Pro Asp Asn Asn Tyr Thr Lys
567                 325                 330                 335
569 Phe Asp Asn Phe Gly Trp Ser Phe Leu Ala Met Phe Arg Val Met Thr
570             340                 345                 350
572 Gln Asp Ser Trp Glu Arg Leu Tyr Arg Gln Ile Leu Arg Thr Ser Gly
573         355                 360                 365
575 Ile Tyr Phe Val Phe Phe Phe Val Val Val Ile Phe Leu Gly Ser Phe
576     370                 375                 380
578 Tyr Leu Leu Asn Leu Thr Leu Ala Val Val Thr Met Ala Tyr Glu Glu
579 385                 390                 395                 400
581 Gln Asn Arg Asn Val Ala Ala Glu Thr Glu Ala Lys Glu Lys Met Phe
582                 405                 410                 415
584 Gln Glu Ala Gln Gln Leu Leu Arg Glu Glu Lys Glu Ala Leu Val Ala
585             420                 425                 430
587 Met Gly Ile Asp Arg Ser Ser Leu Asn Ser Leu Gln Ala Ser Ser Phe
588         435                 440                 445
590 Ser Pro Lys Lys Arg Lys Phe Phe Gly Ser Lys Thr Arg Lys Ser Phe
591     450                 455                 460
593 Phe Met Arg Gly Ser Lys Thr Ala Gln Ala Ser Ala Ser Asp Ser Glu
594 465                 470                 475                 480
596 Asp Asp Ala Ser Lys Asn Pro Gln Leu Leu Glu Gln Thr Lys Arg Leu
597                 485                 490                 495
599 Ser Gln Asn Leu Pro Val Asp Leu Phe Asp Glu His Val Asp Pro Leu
600             500                 505                 510
602 His Arg Gln Arg Ala Leu Ser Ala Val Ser Ile Leu Thr Ile Thr Ile
603         515                 520                 525
605 Gln Glu Gln Glu Lys Phe Gln Glu Pro Cys Phe Pro Cys Gly Lys Asn
606     530                 535                 540
608 Leu Ala Ser Lys Tyr Leu Val Trp Asp Cys Ser Pro Gln Trp Leu Cys
609 545                 550                 555                 560
611 Ile Lys Lys Val Leu Arg Thr Ile Met Thr Asp Pro Phe Thr Glu Leu
612                 565                 570                 575
614 Ala Ile Thr Ile Cys Ile Ile Ile Asn Thr Val Phe Leu Ala Val Glu
615             580                 585                 590
617 His His Asn Met Asp Asp Asn Leu Lys Thr Ile Leu Lys Ile Gly Asn
```

RAW SEQUENCE LISTING DATE: 09/18/2001
PATENT APPLICATION: US/09/646,224 TIME: 10:11:16

Input Set : A:\Pg3432.app
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```
618          595                 600                 605
620 Trp Val Phe Thr Gly Ile Phe Ile Ala Glu Met Cys Leu Lys Ile Ile
621      610                 615                 620
623 Ala Leu Asp Pro Tyr His Tyr Phe Arg His Gly Trp Asn Val Phe Asp
624 625                 630                 635                 640
626 Ser Ile Val Ala Leu Leu Ser Leu Ala Asp Val Leu Tyr Asn Thr Leu
627                 645                 650                 655
629 Ser Asp Asn Asn Arg Ser Phe Leu Ala Ser Leu Arg Val Leu Arg Val
630             660                 665                 670
632 Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile
633          675                 680                 685
635 Ile Gly His Ser Val Gly Ala Leu Gly Asn Leu Thr Val Val Leu Thr
636      690                 695                 700
638 Ile Val Val Phe Ile Phe Ser Val Val Gly Met Arg Leu Phe Gly Thr
639 705                 710                 715                 720
641 Lys Phe Asn Lys Thr Ala Tyr Ala Thr Gln Glu Arg Pro Arg Arg Arg
642                 725                 730                 735
644 Trp His Met Asp Asn Phe Tyr His Ser Phe Leu Val Val Phe Arg Ile
645             740                 745                 750
647 Leu Cys Gly Glu Trp Ile Glu Asn Met Trp Gly Cys Met Gln Asp Met
648          755                 760                 765
650 Asp Gly Ser Pro Leu Cys Ile Ile Val Phe Val Leu Ile Met Val Ile
651      770                 775                 780
653 Gly Lys Leu Val Val Leu Asn Leu Phe Ile Ala Leu Leu Leu Asn Ser
654 785                 790                 795                 800
656 Phe Ser Asn Glu Glu Lys Asp Gly Ser Leu Glu Gly Glu Thr Arg Lys
657                 805                 810                 815
659 Thr Lys Val Gln Leu Ala Leu Asp Arg Phe Arg Arg Ala Phe Ser Phe
660             820                 825                 830
662 Met Leu His Ala Leu Gln Ser Phe Cys Cys Lys Lys Cys Arg Arg Lys
663          835                 840                 845
665 Asn Ser Pro Lys Pro Lys Glu Thr Thr Glu Ser Phe Ala Gly Glu Asn
666      850                 855                 860
668 Lys Asp Ser Ile Leu Pro Asp Ala Arg Pro Trp Lys Glu Tyr Asp Thr
669 865                 870                 875                 880
671 Asp Met Ala Leu Tyr Thr Gly Gln Ala Gly Ala Pro Leu Ala Pro Leu
672                 885                 890                 895
674 Ala Glu Val Glu Asp Asp Val Glu Tyr Cys Gly Glu Gly Gly Ala Leu
675             900                 905                 910
677 Pro Thr Ser Gln His Ser Ala Gly Val Gln Ala Gly Asp Leu Pro Pro
678          915                 920                 925
680 Glu Thr Lys Gln Leu Thr Ser Pro Asp Asp Gln Gly Val Glu Met Glu
681      930                 935                 940
683 Val Phe Ser Glu Glu Asp Leu His Leu Ser Ile Gln Ser Pro Arg Lys
684 945                 950                 955                 960
686 Lys Ser Asp Ala Val Ser Met Leu Ser Glu Cys Ser Thr Ile Asp Leu
687                 965                 970                 975
689 Asn Asp Ile Phe Arg Asn Leu Gln Lys Thr Val Ser Pro Lys Lys Gln
690             980                 985                 990
```

RAW SEQUENCE LISTING DATE: 09/18/2001
PATENT APPLICATION: US/09/646,224 TIME: 10:11:16

Input Set : A:\Pg3432.app
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```
692 Pro Asp Arg Cys Phe Pro Lys Gly Leu Ser Cys His Phe Leu Cys His
693         995                1000                1005
695 Lys Thr Asp Lys Arg Lys Ser Pro Trp Val Leu Trp Trp Asn Ile Arg
696    1010                1015                1020
698 Lys Thr Cys Tyr Gln Ile Val Lys His Ser Trp Phe Glu Ser Phe Ile
E--> 699 025 1025          1030                1035                1040
701 Ile Phe Val Ile Leu Leu Ser Ser Gly Ala Leu Ile Phe Glu Asp Val
702                1045                1050                1055
704 Asn Leu Pro Ser Arg Pro Gln Val Glu Lys Leu Leu Arg Cys Thr Asp
705             1060                1065                1070
707 Asn Ile Phe Thr Phe Ile Phe Leu Leu Glu Met Ile Leu Lys Trp Val
708         1075                1080                1085
710 Ala Phe Gly Phe Arg Arg Tyr Phe Thr Ser Ala Trp Cys Trp Leu Asp
711    1090                1095                1100
713 Phe Leu Ile Val Val Val Ser Val Leu Ser Leu Met Asn Leu Pro Ser
E--> 714 105 1105          1110                1115                1120
716 Leu Lys Ser Phe Arg Thr Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu
717                1125                1130                1135
719 Ser Gln Phe Glu Gly Met Lys Val Val Val Tyr Ala Leu Ile Ser Ala
720             1140                1145                1150
722 Ile Pro Ala Ile Leu Asn Val Leu Leu Val Cys Leu Ile Phe Trp Leu
723         1155                1160                1165
725 Val Phe Cys Ile Leu Gly Val Asn Leu Phe Ser Gly Lys Phe Gly Arg
726    1170                1175                1180
728 Cys Ile Asn Gly Thr Asp Ile Asn Met Tyr Leu Asp Phe Thr Glu Val
E--> 729 185 1185          1190                1195                1200
731 Pro Asn Arg Ser Gln Cys Asn Ile Ser Asn Tyr Ser Trp Lys Val Pro
732                1205                1210                1215
734 Gln Val Asn Phe Asp Asn Val Gly Asn Ala Tyr Leu Ala Leu Leu Gln
735             1220                1225                1230
737 Val Ala Thr Tyr Lys Gly Trp Leu Glu Ile Met Asn Ala Ala Val Asp
738         1235                1240                1245
740 Ser Arg Glu Lys Asp Glu Gln Pro Asp Phe Glu Ala Asn Leu Tyr Ala
741    1250                1255                1260
743 Tyr Leu Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu
E--> 744 265 1265          1270                1275                1280
746 Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Gln Lys
747                1285                1290                1295
749 Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr
750             1300                1305                1310
752 Tyr Asn Ala Met Lys Lys Leu Gly Thr Lys Lys Pro Gln Lys Pro Ile
753         1315                1320                1325
755 Pro Arg Pro Leu Asn Lys Cys Gln Ala Phe Val Phe Asp Leu Val Thr
756    1330                1335                1340
758 Ser Gln Val Phe Asp Val Ile Ile Leu Gly Leu Ile Val Leu Asn Met
E--> 759 345 1345          1350                1355                1360
761 Ile Ile Met Met Ala Glu Ser Ala Asp Gln Pro Lys Asp Val Lys Lys
762                1365                1370                1375
764 Thr Phe Asp Ile Leu Asn Ile Ala Phe Val Val Ile Phe Thr Ile Glu
```

When numbering first amino acid on a line, begin number directly under first letter of amino acid

e.g. Lys 1025

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

```
     765                1380                1385                1390
     767 Cys Leu Ile Lys Val Phe Ala Leu Arg Gln His Tyr Phe Thr Asn Gly
     768          1395                1400                1405
     770 Trp Asn Leu Phe Asp Cys Val Val Val Val Leu Ser Ile Ile Ser Thr
     771     1410                1415                1420
     773 Leu Val Ser Arg Leu Glu Asp Ser Asp Ile Ser Phe Pro Pro Thr Leu
E--> 774 425                 1430                1435                1440
     776 Phe Arg Val Val Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val
     777                 1445                1450                1455
     779 Arg Ala Ala Arg Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser
     780                1460                1465                1470
     782 Leu Pro Ser Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe
     783          1475                1480                1485
     785 Ile Tyr Ala Ile Phe Gly Met Ser Trp Phe Ser Lys Val Lys Lys Gly
     786     1490                1495                1500
     788 Ser Gly Ile Asp Asp Ile Phe Asn Phe Glu Thr Phe Thr Gly Ser Met
E--> 789 505                 1510                1515                1520
     791 Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Thr Leu Leu
     792                 1525                1530                1535
     794 Asn Pro Met Leu Glu Ala Lys Glu His Cys Asn Ser Ser Ser Gln Asp
     795                1540                1545                1550
     797 Ser Cys Gln Gln Pro Gln Ile Ala Val Val Tyr Phe Val Ser Tyr Ile
     798          1555                1560                1565
     800 Ile Ile Ser Phe Leu Ile Val Val Asn Met Tyr Ile Ala Val Ile Leu
     801     1570                1575                1580
     803 Glu Asn Phe Asn Thr Ala Thr Glu Glu Ser Glu Asp Pro Leu Gly Glu
E--> 804 585                 1590                1595                1600
     806 Asp Asp Phe Glu Ile Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Glu
     807                 1605                1610                1615
     809 Ala Ser Gln Phe Ile Gln Tyr Ser Ala Leu Ser Asp Phe Ala Asp Ala
     810                1620                1625                1630
     812 Leu Pro Glu Pro Leu Arg Val Ala Lys Pro Asn Lys Phe Gln Phe Leu
     813          1635                1640                1645
     815 Val Met Asp Leu Pro Met Val Met Gly Asp Arg Leu His Cys Met Asp
     816     1650                1655                1660
     818 Val Leu Phe Ala Phe Thr Thr Arg Val Leu Gly Asp Ser Ser Gly Leu
E--> 819 665                 1670                1675                1680
     821 Asp Thr Met Lys Thr Met Met Glu Glu Lys Phe Met Glu Ala Asn Pro
     822                 1685                1690                1695
     824 Phe Lys Lys Leu Tyr Glu Pro Ile Val Thr Thr Thr Lys Arg Lys Glu
     825                1700                1705                1710
     827 Glu Glu Gln Gly Ala Ala Val Ile Gln Arg Ala Tyr Arg Lys His Met
     828          1715                1720                1725
     830 Glu Lys Met Val Lys Leu Arg Leu Lys Asp Arg Ser Ser Ser Ser His
     831     1730                1735                1740
     833 Gln Val Phe Cys Asn Gly Asp Leu Ser Ser Leu Asp Val Ala Lys Val
E--> 834 745                 1750                1755                1760
     836 Lys Val His Asn Asp
     837                 1765
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VERIFICATION SUMMARY DATE: 09/18/2001
PATENT APPLICATION: US/09/646,224 TIME: 10:11:17

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

L:13 M:270 C: Current Application Number differs, Replaced Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:699 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2